

In the Claims

Claims remain as follows:

1 to 19. (cancelled)

20. (previously presented) A communication system comprising:

a plurality of virtual private networks 'VPNs' interconnected by a first data network;

a second data network connected to the plurality of VPNs via the first data network, the second data network using an Internet Protocol 'IP' network addressing scheme that uses different IP addresses to a private IP network addressing scheme used by at least one of said plurality of VPNs; and

a VPN gateway having a VPN media proxy directly interfacing the first data network and the second data network thereby connecting the second data network to the plurality of VPNs via the first data network, the VPN gateway being shared by said plurality of VPNs and providing a plurality of virtual routing functions, respective ones of said plurality of virtual routing functions being connected to respective ones of said plurality of VPNs such that each virtual routing function has an address in a private IP address space of a respective one of said plurality of VPNs, wherein the VPN media proxy is configured to pass call bearer packets from a source IP address in said at least one of said plurality of VPNs to a destination IP address in said second data network, the VPN media proxy having an IP address translator arranged to translate the destination IP address of the call bearer packets in accordance with the IP network addressing scheme of the second data network, and to send the call bearer packets towards the translated IP destination address in the second data network.

21. (previously presented) The communication system as claimed in claim 20, wherein the IP address translator is arranged to translate a destination IP address

of call bearer packets being transmitted from a source IP address in the second data network to a destination IP address in said at least one of said plurality of VPNs in accordance with the private IP network addressing scheme of said at least one of said plurality of VPNs, and to send the call bearer packets towards the translated destination IP address in said at least one of said plurality of VPNs.

22. (previously presented) The communication system as claimed in claim 21, wherein the first data network is a public data network using a public Internet Protocol 'IP' network addressing scheme, and the second data network is a carrier data network using a private IP network addressing scheme.

23. (previously presented) The communication system as claimed in claim 20, wherein, where more than one of the VPNs use a private IP network addressing scheme, some of said private IP network addressing schemes have overlapping address ranges.

24. (previously presented) The communication system as claimed in claim 22, wherein the carrier data network interfaces the public data network to a switched telephone network 'STN' via a trunk gateway whose carrier data network IP address is the destination address for call bearer packets being transmitted from a source IP address in any of the VPNs to a destination IP address in the carrier data network.

25. (previously presented) The communication system as claimed in claim 24, wherein the STN is a public STN 'PSTN'.

26. (previously presented) The communication system as claimed in claim 24, wherein the VPN gateway is configured to transmit call signaling information between said at least one of said plurality of VPNs and the carrier data network via the public data network and the VPN media proxy being configured to transmit call bearer packets comprising a call between said at least one of said plurality of VPNs

and the carrier data network via the public data network once a call has been established in response to said transmission of call signaling information, the IP address translator of the VPN media proxy being configured to translate a destination IP address of said call bearer packets to the carrier data network IP address of the trunk gateway.

27. (presented presented) The communication system of claim 26, wherein the call signaling comprises voice over IP 'VoIP' call signaling and the call comprises a VoIP call.

28. (cancelled)

29. (previously presented) The communication system as claimed in claim 20, wherein the address translator of the VPN media proxy is configured to provide an IP network address translation function to each of the virtual routing functions.

30. (previously presented) A method of address translation in a communication system comprising a plurality of virtual private networks 'VPNs' interconnected by a first data network; a second data network connected to the plurality of VPNs via the first data network, the second data network using an Internet Protocol 'IP' network addressing scheme that uses different IP addresses to a private IP network addressing scheme used by at least one of said plurality of VPNs; and a VPN gateway having a VPN media proxy directly interfacing the first data network and the second data network thereby connecting the second data network to the plurality of VPNs via the first data network, the method comprising:

providing in the VPN gateway a plurality of virtual routing functions, respective ones of said plurality of virtual routing functions being connected to respective ones of said plurality of VPNs such that each virtual routing function is has an address in a private IP address space of a respective one of said plurality of VPNs;

passing call bearer packets via the VPN media proxy from a source IP address in said at least one of said plurality of VPNs to a destination IP address in said second data network;

at an IP address translator of the VPN media proxy, translating the destination IP address of the call bearer packets in accordance with the network addressing scheme of the second data network, and

sending the call bearer packets towards the translated IP destination address in the second data network.

31. (previously presented) The method as claimed in claim 30, wherein the IP address translator translates a destination IP address of call bearer packets being transmitted from a source IP address in the second carrier data network to a destination IP address in said at least one of said plurality of VPNs in accordance with the private IP network addressing scheme of said at least one of said plurality of VPNs, and sends the call bearer packets towards the translated destination IP address in said at least one of said plurality of VPNs.

32. (cancelled)

33. (previously presented) The method as claimed in claim 30, wherein the IP address translator of the VPN media proxy provides an IP network address translation function to each of the virtual routing functions.

34. (previously presented) The method as claimed in claim 31, wherein the first data network is a public data network using a public Internet Protocol 'IP' network addressing scheme, and the second data network is a carrier data network using a private IP network addressing scheme.

35. (previously presented) The method as claimed in claim 30, wherein, where more than one of the VPNs use a private IP network addressing schemes, some of said private IP network addressing schemes have overlapping address ranges.

36. (previously presented) The method as claimed in claim 34, wherein the carrier data network interfaces the public data network to a switched telephone network 'STN' via a trunk gateway whose carrier data network IP address is the destination IP address for call bearer packets being transmitted from a source IP address in any of the VPNs to a destination IP address in the carrier data network.

37. (previously presented) The method as claimed in claim 36, wherein the STN is a public STN 'PSTN'.

38. (previously presented) The method as claimed in claim 36, wherein the VPN gateway transmits voice over IP 'VoIP' call signaling information between said at least one of said plurality of VPNs and the carrier data network via the public data network and the VPN media proxy transmitting call bearer packets comprising a VoIP call between said at least one of said plurality of VPNs and the carrier data network via the public data network once a VoIP call has been established in response to said transmission of VoIP call signaling information, the IP address translator of the VPN media proxy translating a destination IP address of said call bearer packets to the carrier data network IP address of the trunk gateway.

39. (previously presented) A virtual private network 'VPN' gateway having a VPN media proxy for a communication system comprising a plurality of virtual private networks 'VPNs' interconnected by a first data network and a second data network connected to the plurality of VPNs via the first data network, the second data network using an Internet Protocol 'IP' network addressing scheme that is uses different IP addresses to a private IP network addressing scheme used by at least one of said plurality of VPNs; the VPN media gateway comprising:

a first interface for directly interfacing with the first data network;
a second interface for directly interfacing with the second data network, said first and second interfaces connecting the second data network to the plurality of VPNs via the first data network;
a plurality of virtual routing functions, respective ones of said plurality of virtual routing functions being connected to respective ones of said plurality of VPNs such that each virtual routing function has an address in a private IP address space of a respective one of said plurality of VPNs whereby said VPN gateway is shared by said plurality of VPNs; and
means for passing call bearer packets from a source IP address in said at least one of said plurality of VPNs to a destination IP address in said second data network, said means for passing call bearer packets comprising an IP address translator for translating the destination IP address of the call bearer packets in accordance with the IP network addressing scheme of the second data network and sending the call bearer packets towards the translated destination IP address in the second data network.

40. (previously presented) The VPN gateway as claimed in claim 39, wherein the IP address translator is arranged to translate a destination IP address of call bearer packets being transmitted from a source IP address in the second data network to a destination IP address in said at least one of said plurality of VPNs in accordance with the private IP network addressing scheme of said at least one of said plurality of VPNs, and to send the call bearer packets towards the translated destination IP address in said at least one of said plurality of VPNs.

41. (cancelled)

42. (previously presented) The VPN gateway as claimed in claim 39, wherein the IP address translator of the VPN media proxy is configured to provide an IP network address translation function to each of the virtual routing functions.

43. (previously presented) The VPN gateway as claimed in claim 40, wherein the first data network is a public data network using a public Internet Protocol 'IP' network addressing scheme, and the second data network is a carrier data network using a private IP network addressing scheme, the carrier data network interfaces the public data network to a switched telephone network 'STN' via a trunk gateway whose carrier data network IP address is the destination IP address for call bearer packets being transmitted from a source IP address in any of the VPNs to a destination IP address in the carrier data network, a VPN gateway is provided to interface the public and carrier data networks and to transmit voice over IP 'VoIP' call signaling call bearer packets between said at least one of said plurality of VPNs and the carrier data network via the public data network and wherein the means for passing is configured to transmit call bearer packets comprising a VoIP call between said at least one of said plurality of VPNs and the carrier data network via the public data network once a VoIP call has been established in response to said transmission of VoIP call signaling information, the IP address translator being configured to translate a destination IP address of said call bearer packets to the carrier data network IP address of the trunk gateway.

44. (cancelled)

45. (previously presented) The VPN gateway as claimed in claim 43, wherein the STN is a public STN 'PSTN'.

46. (previously presented) The VPN gateway as claimed in claim 40, further comprising a configuration store for storing configuration information comprising source and destinations IP addresses for call bearer packets being transmitted between an entity in one of said plurality of VPNs and an entity in said second data network, wherein said configuration information includes information associating said source and destination addresses with respective target addresses, said target

addresses comprising the translated destination IP addresses in said one of said plurality of VPNs and said second data network.

47. (previously presented) A computer readable medium storing computer readable instructions which, when executed by a processor of a computing device, cause said computing device to implement, in a communication system comprising a plurality of virtual private networks 'VPNs' interconnected by a first data network; a second data network connected to the plurality of VPNs via the first data network, the second data network using an Internet Protocol 'IP' network addressing scheme that uses different IP addresses to a private IP network addressing scheme used by at least one of said plurality of VPNs; and a VPN gateway having a VPN media proxy directly interfacing the first data network and the second data networks thereby connecting the second data network to the plurality of VPNs via the first data network, the method comprising:

- providing in the VPN gateway a plurality of virtual routing functions, respective ones of said plurality of virtual routing functions being connected to respective ones of said plurality of VPNs such that each virtual routing function has an address in a private IP address space of a respective one of said plurality of VPNs;

- passing call bearer packets via the VPN media proxy from a source IP address in said at least one of said plurality of VPNs to a destination IP address in said second data network;

- at an IP address translator of the VPN media proxy, translating the destination IP address of the call bearer packets in accordance with the network addressing scheme of the second data network, and

- sending the call bearer packets towards the translated IP destination address in the second data network.